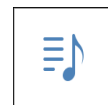




Armed Forces College of Medicine AFCM







Pathology of non neoplastic skin disorders



INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

1. Define gross and microscopic terms applied in skin pathology.
2. Identify classification of skin disorders.
3. Discuss the pathology of non neoplastic skin lesions.
4. Analyse the given clinical and laboratory findings to reach diagnosis of pathological conditions related to non neoplastic skin lesions

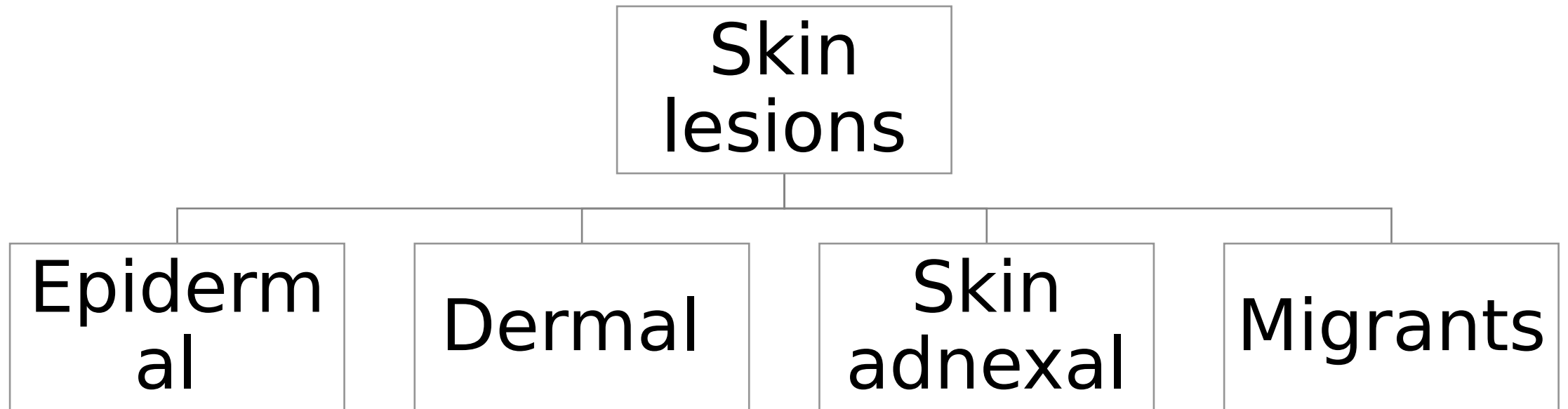


Lecture Plan



1. Part 1 (5 min) classification of skin lesions
2. Part 2 (35 min) Macroscopic and microscopic terms
3. Part 3 (5 min) Tumor like lesions and epithelial skin cysts
4. Lecture Quiz (5 min)

Classification of skin lesions



Histology of normal skin



Components:

- **Squamous epithelial cells (keratinocytes)** constitute the majority of epidermal cells and synthesize the keratin mechanical barrier.
- **Melanocytes** produce melanin pigment to screen ultraviolet (UV) light.
- **Dendritic cells** (called Langerhans cells in the epidermis) process and present antigen to activate the immune system
- **Merkel cells** also reside in the epidermal basal layer.

Skin adnexa:

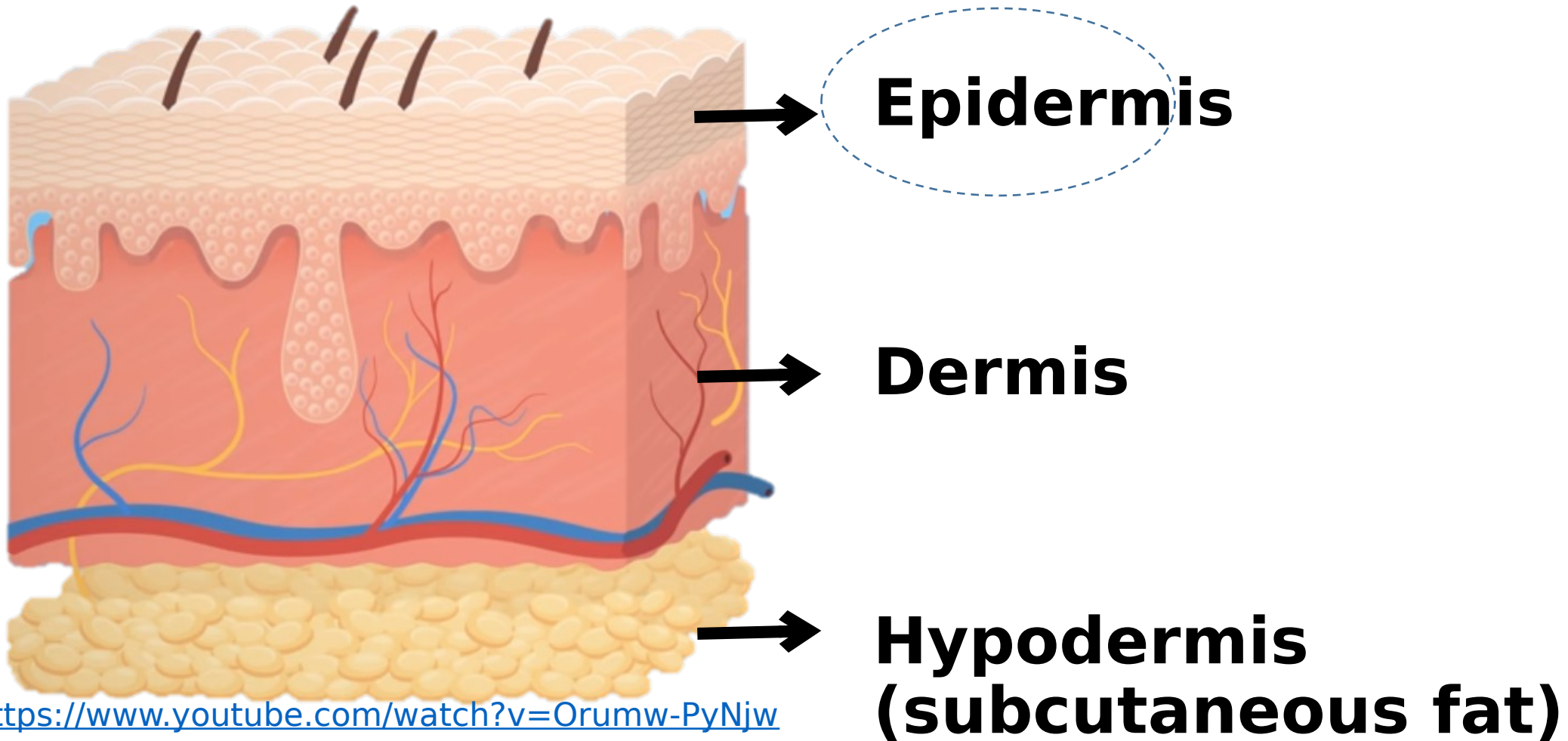
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- **Sweat glands, sebaceous glands & Hair follicles**



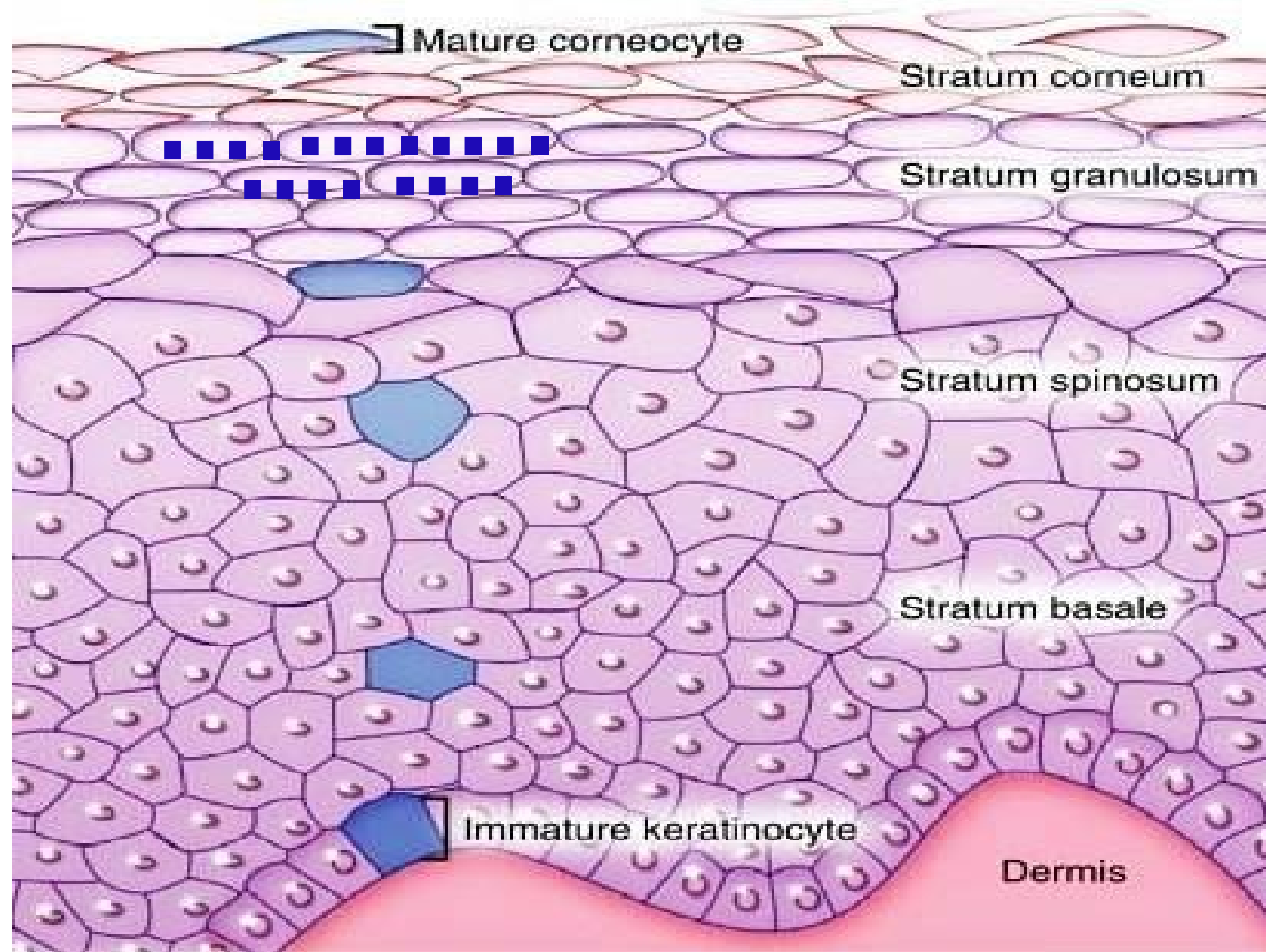
Normal skin



<https://www.youtube.com/watch?v=Orumw-PyNjw>



Normal skin



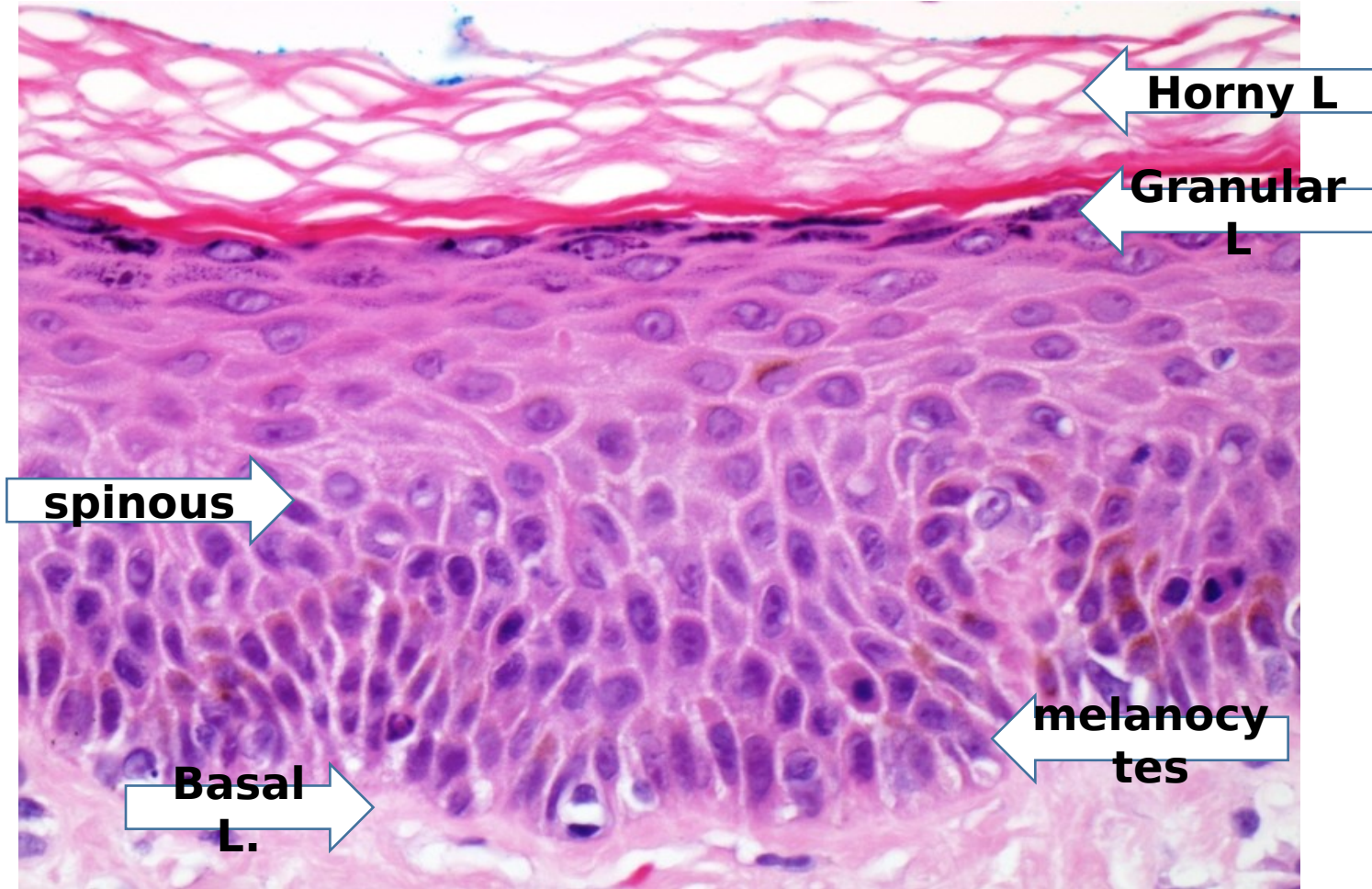
Normal skin



Epidermis

Keratinocytes

- **Horny layer**
- **Granular layer**
- **Spinous cell layer**
(polyhydral cells, eosinophilic)
- **Basal layers** (single layer of columnar cells perpendicular to BM, basophilic, scattered melanocytes in between)

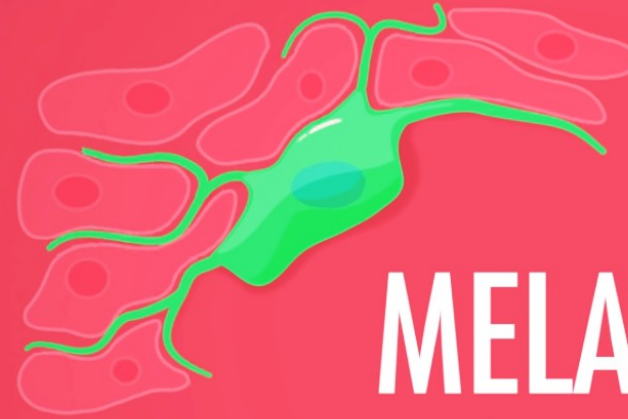


<https://tissupath.com.au/medical-student-subjects-skin>



KERATINOCYTES

› *the building blocks of the tough, fibrous protein keratin*

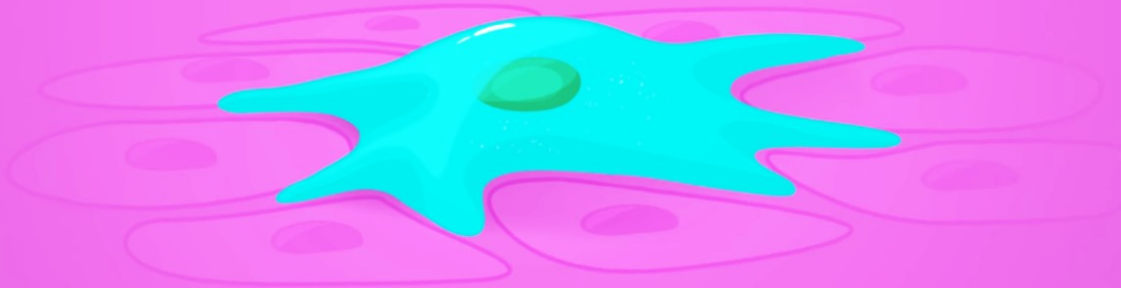


MELANOCYTE

› *synthesizes melanin*

LANGERHANS CELLS

› *ingesting the unwanted invaders*



MERKEL CELLS

› *combine with nerve endings to create a sensory receptor for touch*



Macroscopic terms



- **Vesicle** Elevated fluid-filled lesion less than 5 mm
- **Bulla** Elevated fluid-filled lesion more than 5 mm
- **Macule** Flat, circumscribed area 5 mm or more distinguished by coloration
- **Nodule** Elevated dome-shaped lesion with depth up to 2 cm
- **Papule** Elevated lesion 5 mm or more
- **Pustule** Discrete, pus-filled raised lesion
- **Wheal** Pruritic, elevated, erythematous lesion secondary to dermal edema



Define gross and microscopic terms applied in skin pathology.



Complete

- ❖ Flat, circumscribed area 5 mm or more distinguished by coloration is.....

Macule

- ❖ Discrete, pus-filled raised lesion is

Pustule



Macroscopic terms



Wheal



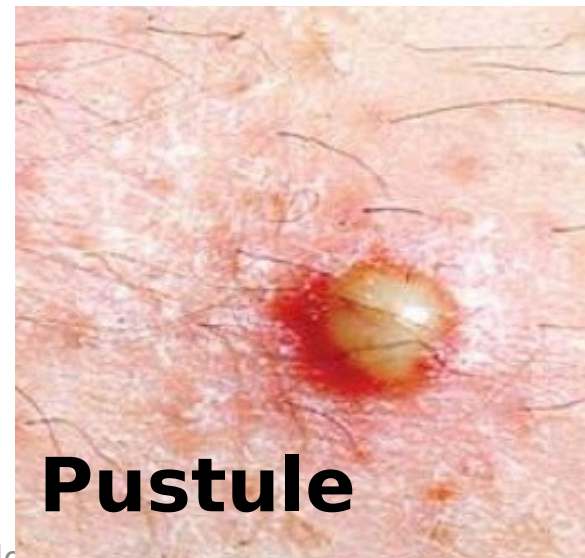
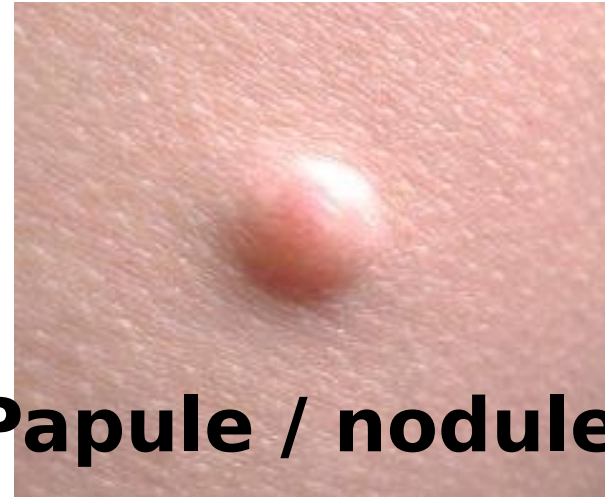
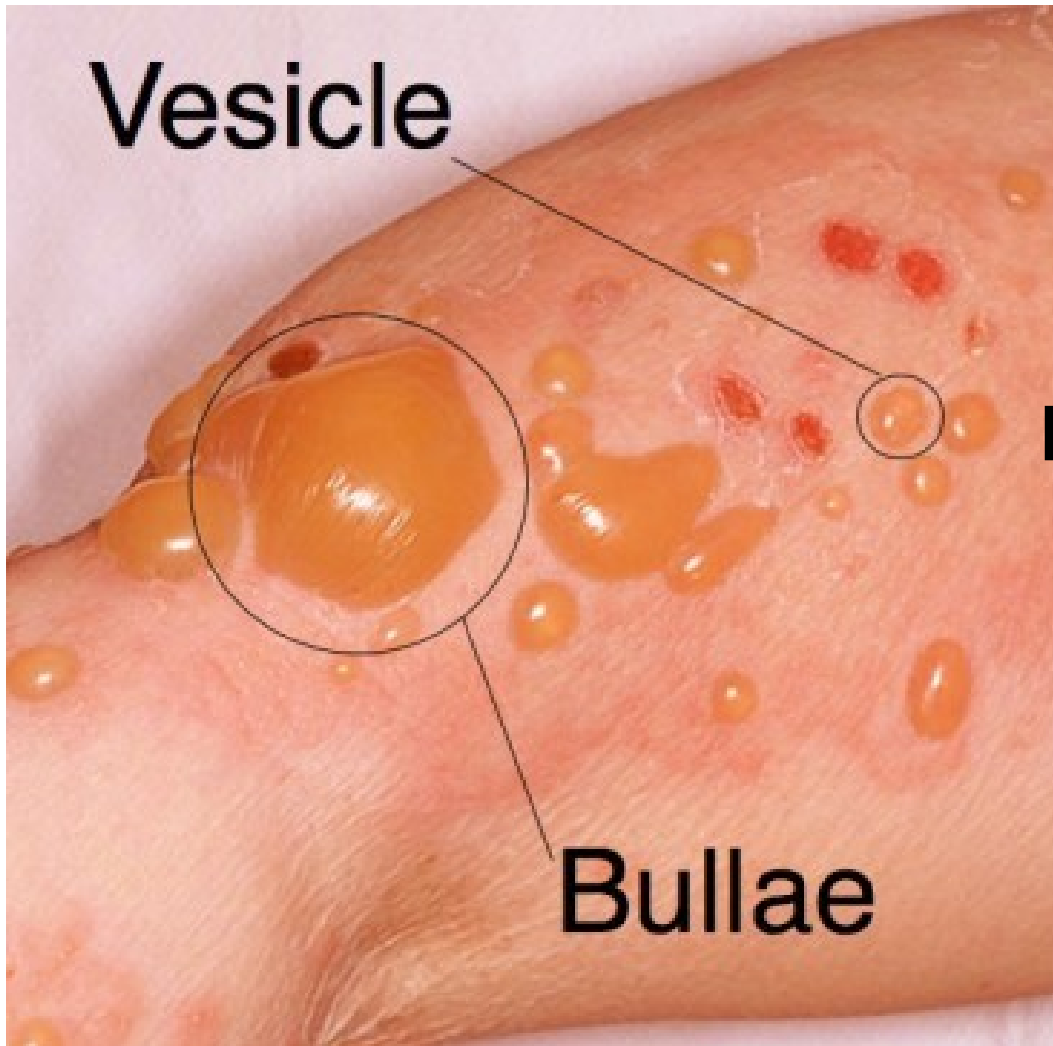
Macule

<http://tinambarber.info/736b696e/skin-wheal.html>

<https://www.studyblue.com/notes/note/n/describing-skin-lesions/deck/152306>



Macroscopic terms



<https://www.cram.com/flashcards/final-2376889>

<https://ui-ex.com/explore/bullae-clipart-vesicle/>

<https://www.memorangapp.com/flashcards/168276/MS3%3A+Derm+Vocab/>



Microscopic terms



- **Acanthosis** Epidermal hyperplasia
- **Dyskeratosis** Abnormal keratinization below the stratum granulosum
- **Hyperkeratosis** Stratum corneum thickening, often with aberrant keratinization
- **Parakeratosis** Stratum corneum keratinization with retained nuclei
- **Erosion** Focal incomplete epidermal loss
- **Ulceration** Focal, complete epidermal loss
- **Papillomatosis** Surface elevation due to dermal



Examples of tumor like skin lesions

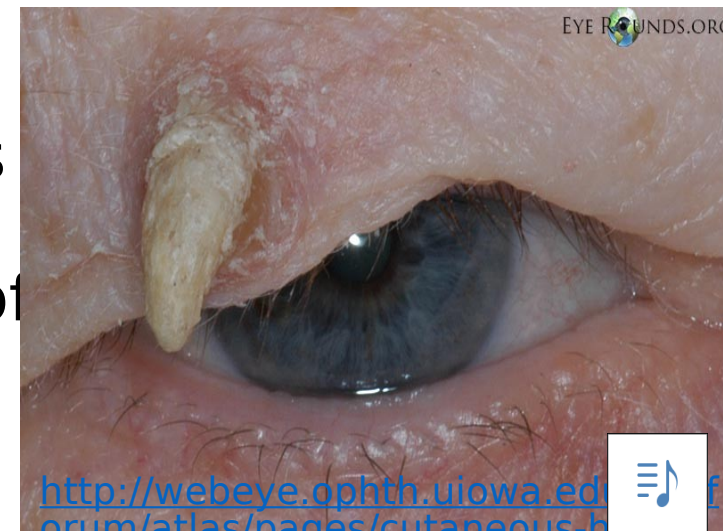


- **Seborrheic keratosis** are benign squamoproliferative neoplasms that are very common in middle-aged and elderly individuals;
 - Occur on the trunk, head, neck, and the extremities.



<https://www.healthline.com/health/seborrheic-keratosis>

- **Cutaneous horn:**
 - Occur in head and neck and hands of older persons
 - Hard yellow to brown skin excrescence composed of compact keratin resembling a horn



<http://webeye.ophth.uiowa.edu/eforum/atlas/pages/cutaneous-horn.htm>

- Can be straight or curved

Epithelial skin cysts



- Epithelial cysts are common lesions
- Presenting as **well-circumscribed**, **firm subcutaneous nodules** formed by down growth and cystic expansion of epidermal or follicular epithelium.



Epithelial skin cysts

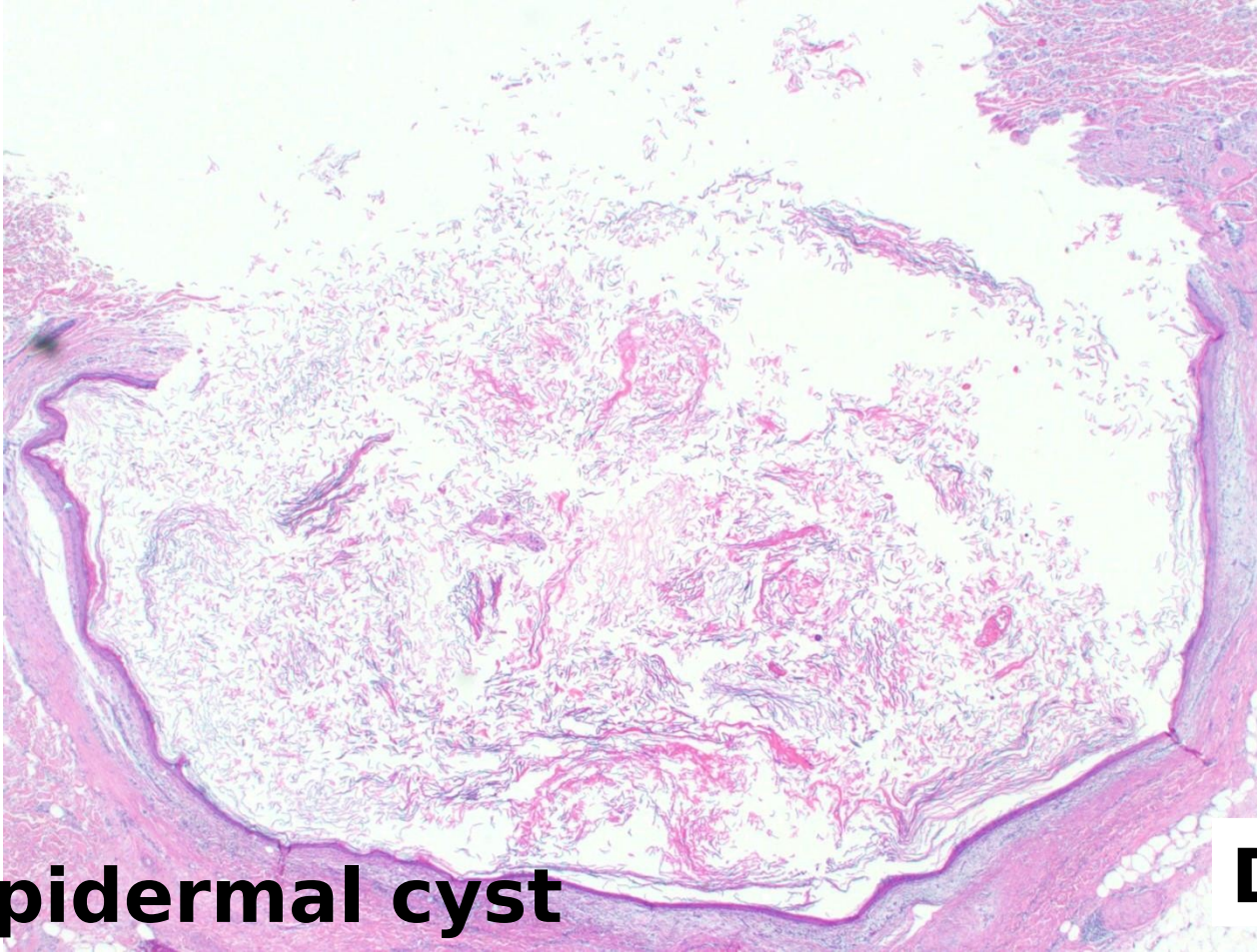


Lesions are filled with **keratin** and variable amounts of **lipid** and debris from sebaceous secretions; they are subclassified based on the cyst wall characteristics:

- **Epidermal cyst**: Wall is identical to normal epidermis.
- **Pilar (trichilemmal) cyst**: Wall resembles follicular epithelium (i.e., without a granular cell layer).



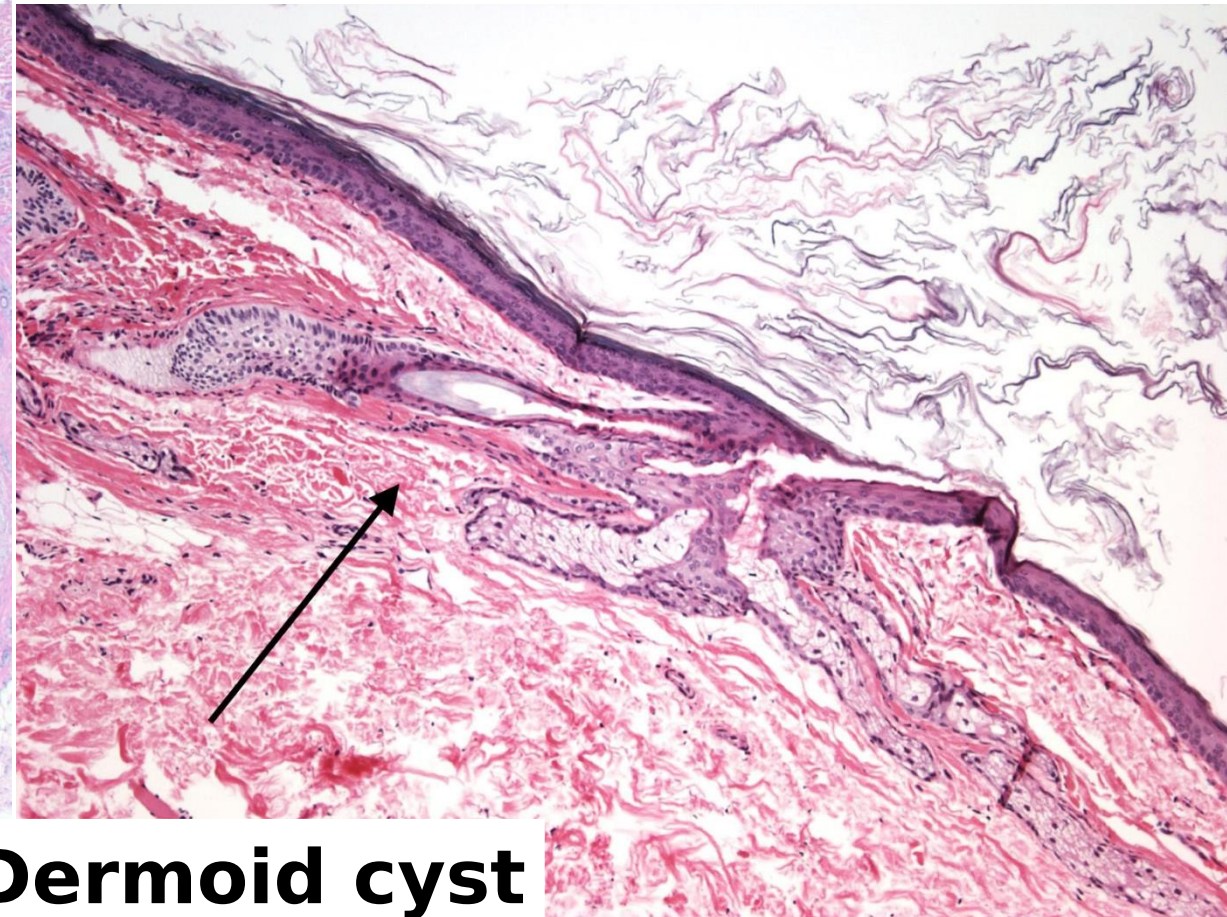
Epithelial skin cysts



Epidermal cyst

<http://www.pathologyoutlines.com/topic/skintumor/nonmelanocytickeratinouscystepidermal.html>

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Dermoid cyst

<http://www.pathologyoutlines.com/topic/skintumor/nonmelanocyticdermoidcyst.html>

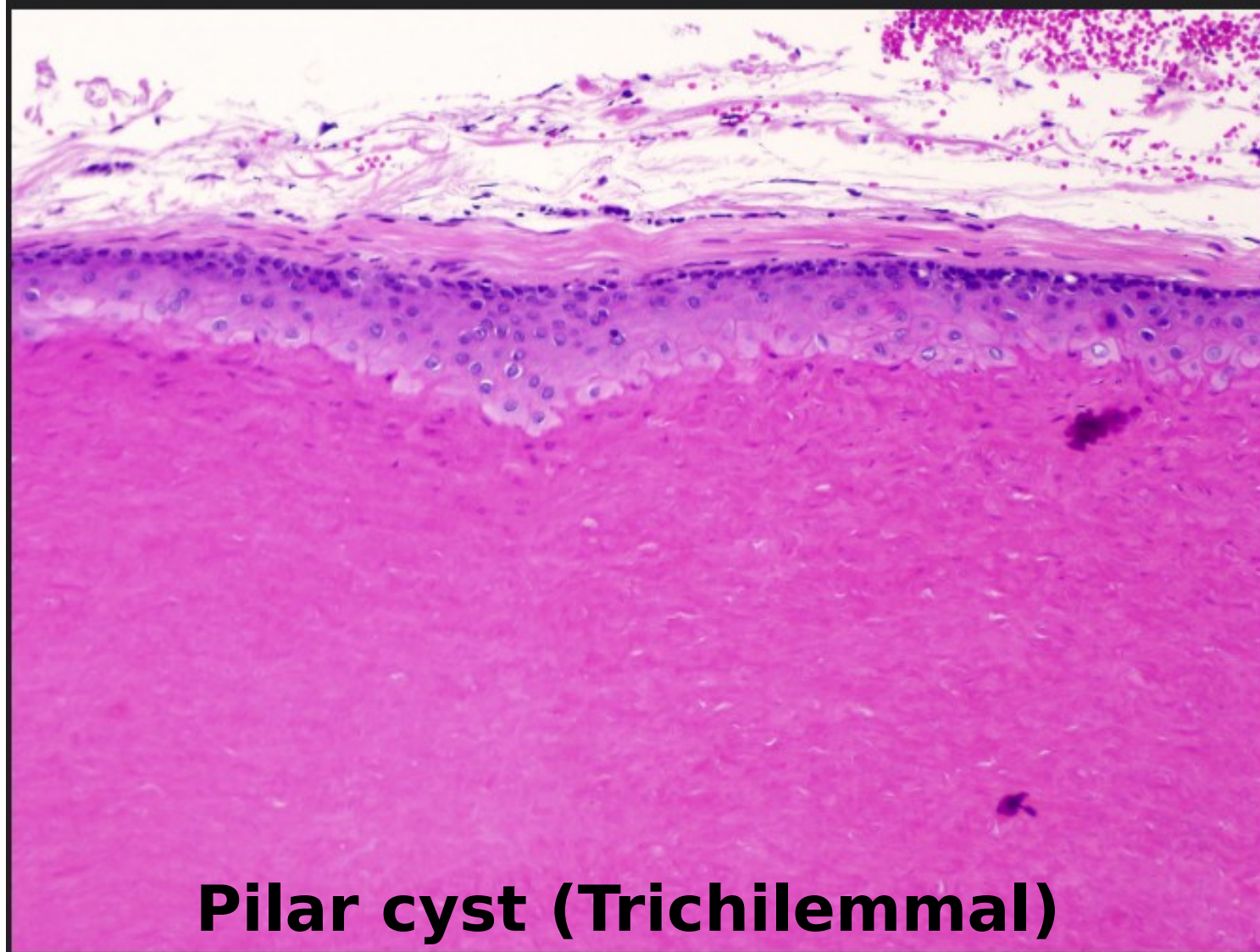
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20



Epithelial skin cysts



<http://www.pathologyoutlines.com/topic/skinumornonmelanocytickeratouscysttrichilemmal.html?mobile=off>



Quiz



True or false

1. Pus filled raised skin lesion is a papule

2. Dermoid cyst wall is identical to the epidermis



True or false

1. Pus filled raised skin lesion is a ~~papule~~
pustule

2. Epidermal ~~Dermoid~~ cyst wall is identical
to the epidermis

- **Seborrheic keratosis and cutaneous horn:** are tumor like skin lesion

Epithelial skin cysts: Lesions are filled with **keratin** and variable amounts of **lipid** and debris from sebaceous secretions; they are subclassified based on the cyst wall characteristics:

- **Epidermal cyst:** Wall is identical to normal epidermis.
- **Pilar (trichilemmal) cyst:** Wall resembles follicular epithelium (i.e., without a granular cell layer).
- **Dermoid cyst:** Wall is similar to epidermis





SUGGESTED TEXTBOOKS



1. Pocket companion to robbins and cotran pathologic basis of disease eighth edition, 2017, isbn: 978-1-4160-5454-2 (P590-611)
2. Kaplan step 1 pathology lecture notes 2017 (P.78-98)